



PRODUCT SPECIFICATION

- Tentative Specification
- Preliminary Specification
- Approval Specification

**MODEL NO.: V420HJ1
SUFFIX: P01**

Customer:

APPROVED BY

SIGNATURE

Name / Title

Note

Please return 1 copy for your confirmation with your signature and comments.

Approved By	Checked By	Prepared By
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PRODUCT SPECIFICATION

REVISION HISTORY

Version	Date	Page(New)	Section	Description
Ver. 0.0	Nov 25, 2011	All	All	The Tentative specification was first issued.
Ver. 1.0	Jan 04, 2012	All	All	The Preliminary specification was first issued.
Ver. 2.0	Feb 22, 2012	5	1.2	The Approval specification was first issued. Modify Contrast Ratio & Color Chromaticity.
Ver. 2.1	Mar 29, 2012	8 19 30	3.1 5.5 10	Add Power Consumption. Add Adjustment Method. Modify PACKAGING SPECIFICATIONS & PACKAGING Method.



PRODUCT SPECIFICATION

1. GENERAL DESCRIPTION

1.1 OVERVIEW

V420HJ1-P01 is a 42" TFT Liquid Crystal Display product with driver ICs and 2ch-LVDS interface. This product supports 1920 x 1080 Full HDTV format and can display 16.7M colors (8-bit/color).

1.2 FEATURES

CHARACTERISTICS ITEMS	SPECIFICATIONS
Screen Diagonal [in]	42.02
Pixels [lines]	1920 × 1080
Active Area [mm]	930.24(H) × 523.26(V) (42.02" diagonal)
Sub-Pixel Pitch [mm]	0.1615(H) × 0.4845(V)
Pixel Arrangement	RGB vertical stripe
Weight [g]	TYP. 2100g
Physical Size [mm]	957.72 (W) × 582.66 (H) × 4.75(D) Typ.
Display Mode	Transmissive mode / Normally black
Contrast Ratio	4000:1 Typ. (Typical value measure at CMI's module)
Glass thickness (Array / CF) [mm]	0.7 / 0.7
Viewing Angle (CR>20)	+88/-88(H), +88/-88(V) Typ. (CR \geq 20) (Typical value measure at CMI's module)
Color Chromaticity	R = (0.649, 0.323) G = (0.300, 0.597) B = (0.135, 0.108) W = (0.3075, 0.3496) * Please refer to "color chromaticity" on p.25
Cell Transparency [%]	5.7%
Polarizer Surface Treatment	Anti-Glare coating (Haze 3.5%), Hard coating (3H)

1.3 MECHANICAL SPECIFICATIONS

Item	Min.	Typ.	Max.	Unit	Note
Weight	1995	2100	2205	g	-
I/F connector mounting position	The mounting inclination of the connector makes the screen center within $\pm 0.5\text{mm}$ as the horizontal.				(2)

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

Note (2) Connector mounting position

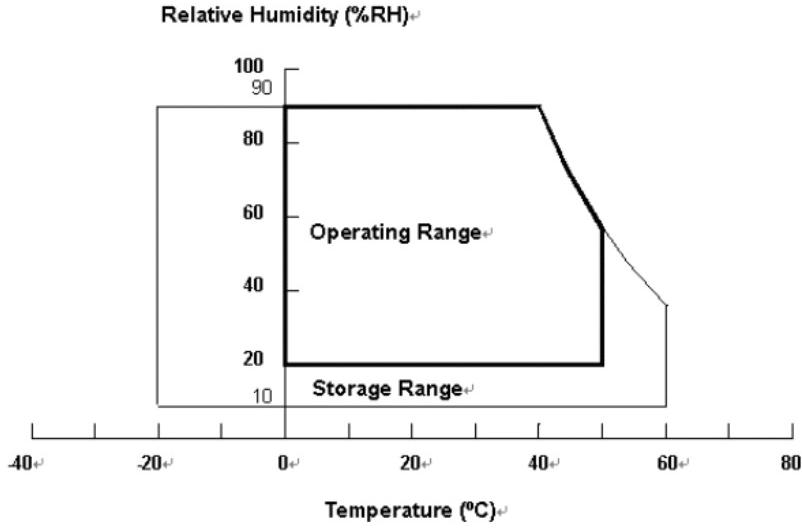
2. ABSOLUTE MAXIMUM RATINGS**2.1 ABSOLUTE RATINGS OF ENVIRONMENT**

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	TST	-20	+60	°C	(1)
Operating Ambient Temperature	TOP	0	50	°C	(1), (2)

Note (1) Temperature and relative humidity range is shown in the figure below.

- (a) 90 %RH Max. ($T_a \leq 40$ °C).
- (b) Wet-bulb temperature should be 39 °C Max. ($T_a > 40$ °C).
- (c) No condensation.

Note (2) The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 65 °C with LCD module alone in a temperature controlled chamber. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 65 °C. The range of operating temperature may degrade in case of improper thermal management in final product design.



2.2 PACKAGE STORAGE

When storing modules as spares for a long time, the following precaution is necessary.

- (a) Do not leave the module in high temperature, and high humidity for a long time, It is highly recommended to store the module with temperature from 0 to 35 °C at normal humidity without condensation.
- (b) The module shall be stored in dark place. Do not store the TFT-LCD module in direct sunlight or fluorescent light.

2.3 ELECTRICAL ABSOLUTE RATINGS**2.3.1 TFT LCD MODULE**

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCC	-0.3	13.5	V	(1)
Logic Input Voltage	VIN	-0.3	3.6	V	

3. ELECTRICAL CHARACTERISTICS

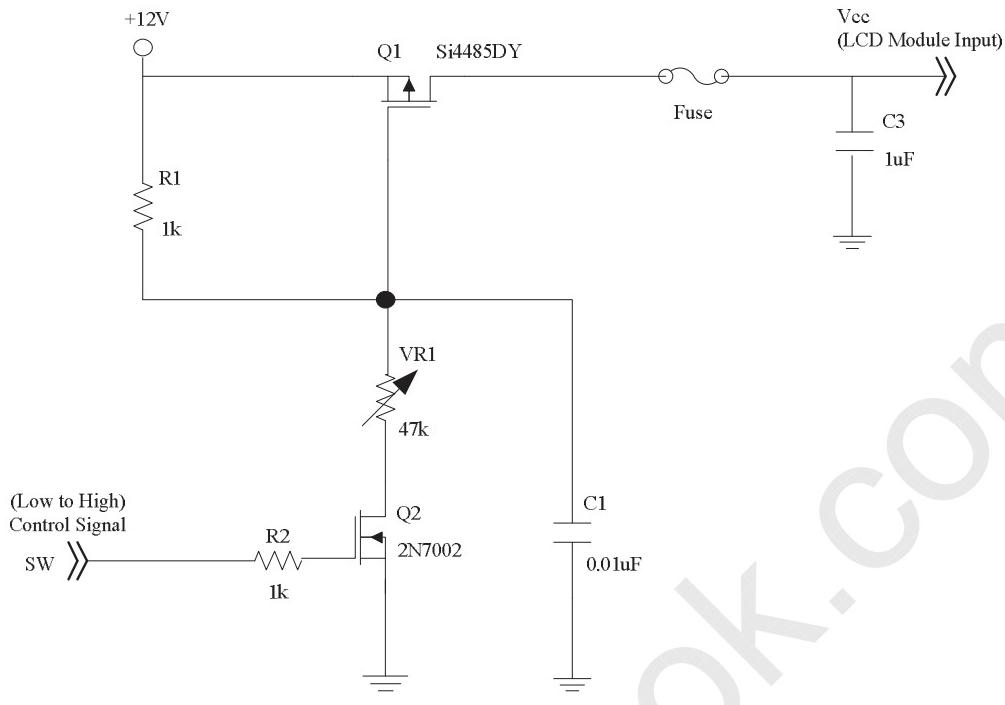
3.1 TFT LCD MODULE

(Ta = 25 ± 2 °C)

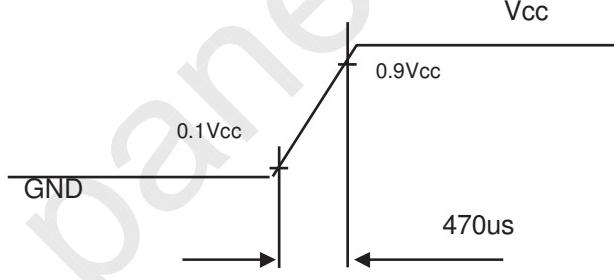
Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	V _{CC}	10.8	12	13.2	V	(1)
Rush Current	I _{RUSH}	—	—	3.5	A	(2)
Power Consumption	White Pattern	P _T	—	4.176	5.491	W
	Horizontal Stripe		—	7.488	9.952	W
	Black Pattern		—	4.176	5.491	W
Power Supply Current	White Pattern	—	—	0.348	0.416	A
	Horizontal Stripe	—	—	0.624	0.754	A
	Black Pattern	—	—	0.348	0.416	A
LVDS interface	Differential Input High Threshold Voltage	V _{LVTH}	+100	—	—	mV
	Differential Input Low Threshold Voltage	V _{LVTL}	—	—	-100	mV
	Common Input Voltage	V _{CM}	1.0	1.2	1.4	V
	Differential input voltage	V _{ID}	200	—	600	mV
	Terminating Resistor	R _T	—	100	—	ohm
CMOS interface	Input High Threshold Voltage	V _{IH}	2.7	—	3.3	V
	Input Low Threshold Voltage	V _{IL}	0	—	0.7	V

Note (1) The module should be always operated within the above ranges.

Note (2) Measurement condition:

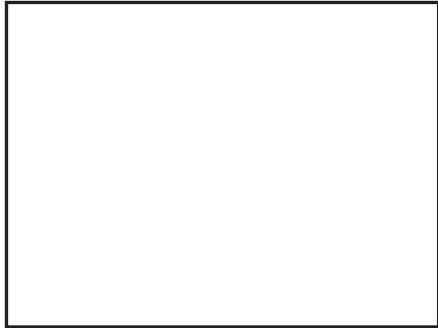


Vcc rising time is 470us

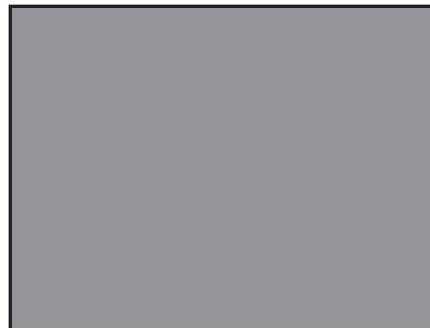


Note (3) The specified power supply current is under the conditions at $V_{cc} = 12\text{ V}$, $T_a = 25 \pm 2\text{ }^{\circ}\text{C}$, $f_v = 60\text{ Hz}$, whereas a power dissipation check pattern below is displayed.

a. White Pattern

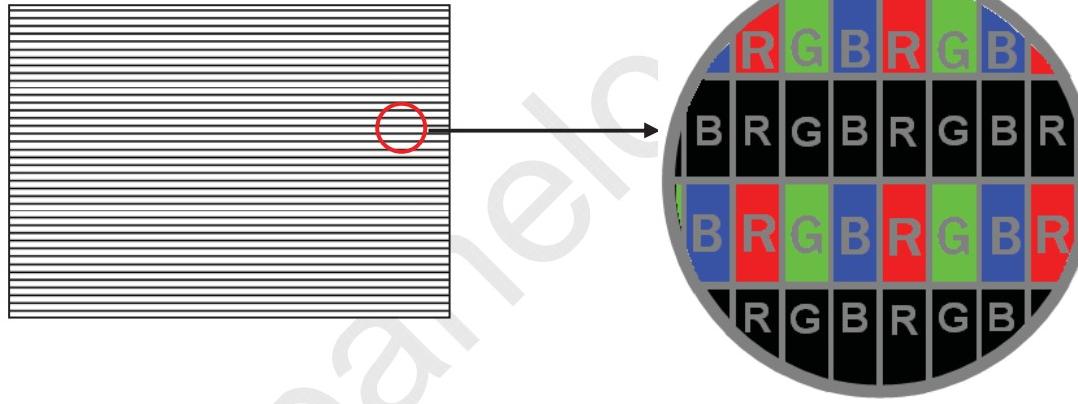


b. Black Pattern

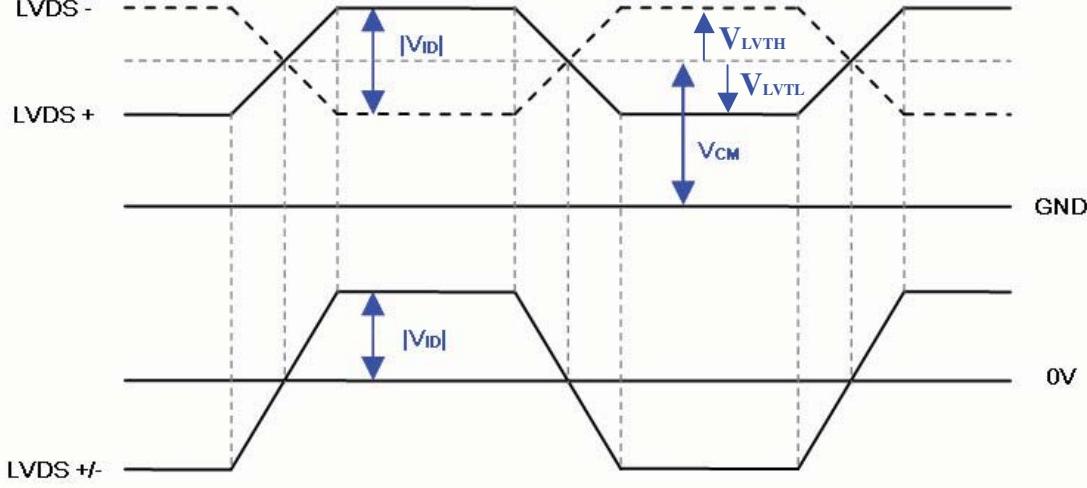


Active Area

Active Area

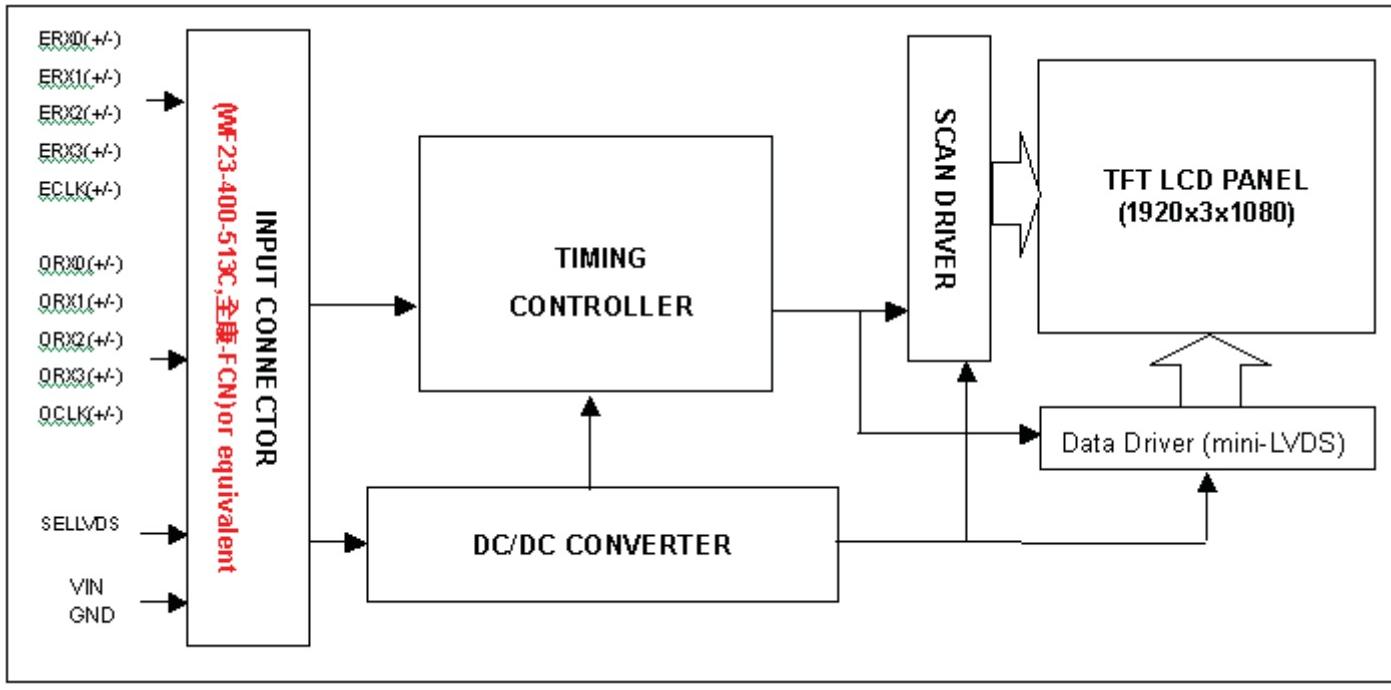


Note (4) The LVDS input characteristics are as follows:



4. BLOCK DIAGRAM OF INTERFACE

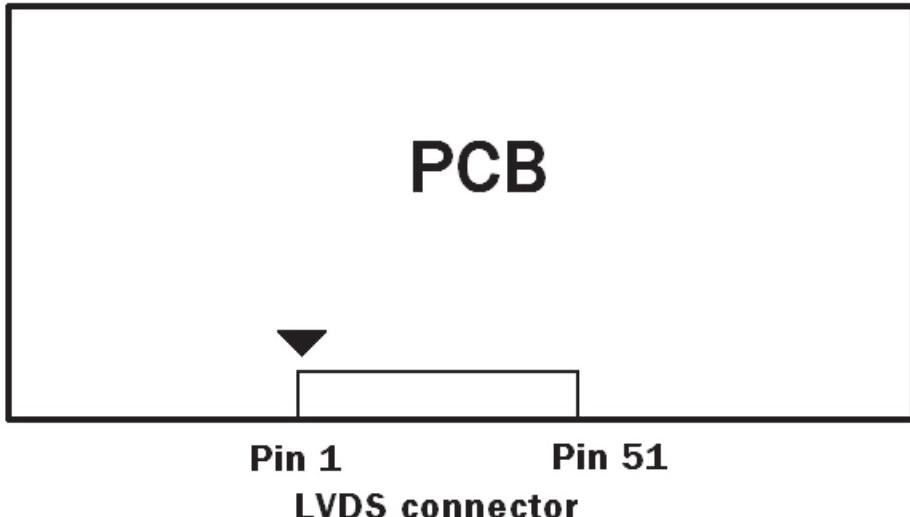
4.1 TFT LCD MODULE



5. INPUT TERMINAL PIN ASSIGNMENT**5.1 TFT LCD Module Input**

Pin	Name	Description	Note
1	GND	Ground	
2	SCL	I2C clock (For auto Vcom)	
3	SDA	I2C data (For auto Vcom)	
4	N.C.	No Connection	(2)
5	N.C.	No Connection	
6	N.C.	No Connection	
7	SELLVDS	LVDS data format Selection	(3)(4)
8	N.C.	No Connection	(2)
9	N.C.	No Connection	
10	N.C.	No Connection	(2)
11	GND	Ground	
12	ERX0-	Even pixel Negative LVDS differential data input. Channel 0	(5)
13	ERX0+	Even pixel Positive LVDS differential data input. Channel 0	
14	ERX1-	Even pixel Negative LVDS differential data input. Channel 1	
15	ERX1+	Even pixel Positive LVDS differential data input. Channel 1	
16	ERX2-	Even pixel Negative LVDS differential data input. Channel 2	
17	ERX2+	Even pixel Positive LVDS differential data input. Channel 2	
18	GND	Ground	
19	ECLK-	Even pixel Negative LVDS differential clock input	(5)
20	ECLK+	Even pixel Positive LVDS differential clock input	
21	GND	Ground	
22	ERX3-	Even pixel Negative LVDS differential data input. Channel 3	(5)
23	ERX3+	Even pixel Positive LVDS differential data input. Channel 3	
24	N.C.	No Connection	(2)
25	N.C.	No Connection	
26	GND	Ground	
27	GND	Ground	
28	ORX0-	Odd pixel Negative LVDS differential data input. Channel 0	(5)
29	ORX0+	Odd pixel Positive LVDS differential data input. Channel 0	
30	ORX1-	Odd pixel Negative LVDS differential data input. Channel 1	
31	ORX1+	Odd pixel Positive LVDS differential data input. Channel 1	
32	ORX2-	Odd pixel Negative LVDS differential data input. Channel 2	
33	ORX2+	Odd pixel Positive LVDS differential data input. Channel 2	
34	GND	Ground	
35	OCLK-	Odd pixel Negative LVDS differential clock input.	(5)
36	OCLK+	Odd pixel Positive LVDS differential clock input.	
37	GND	Ground	
38	ORX3-	Odd pixel Negative LVDS differential data input. Channel 3	(5)
39	ORX3+	Odd pixel Positive LVDS differential data input. Channel 3	
40	N.C.	No Connection	(2)
41	N.C.	No Connection	
42	GND	Ground	
43	GND	Ground	
44	GND	Ground	
45	GND	Ground	
46	GND	Ground	
47	N.C.	No Connection	(2)
48	VCC	+12V power supply	
49	VCC	+12V power supply	
50	VCC	+12V power supply	
51	VCC	+12V power supply	

Note (1) LVDS connector pin orderdefined as follows



Note (2) Reserved for internal use. Please leave it open.

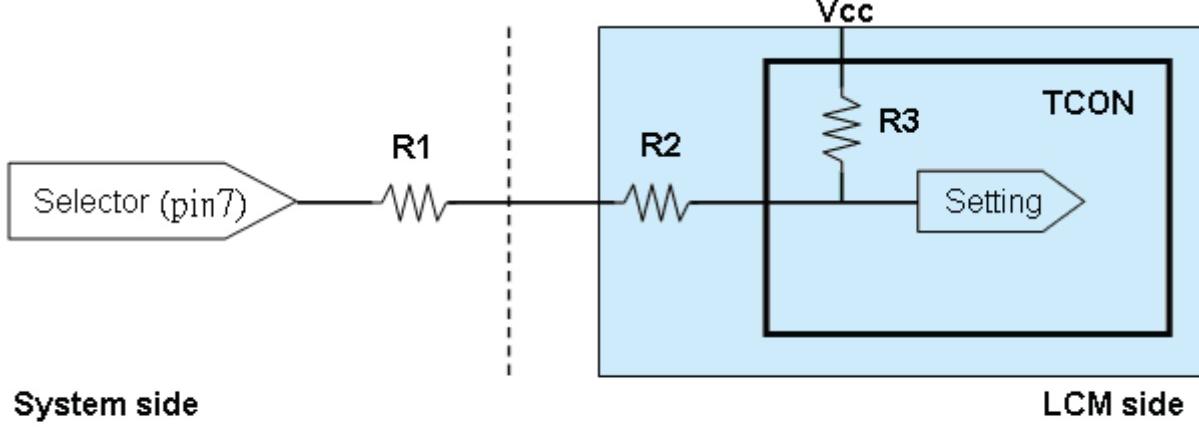
Note (3) LVDS data format selection.

SELLVDS	Mode
L	JEIDA
H(default)	VESA

Low = connect to GND, High = Connect to +3.3V or Open

Note (4) LVDS signal pin connected to the LCM side has the following diagram.

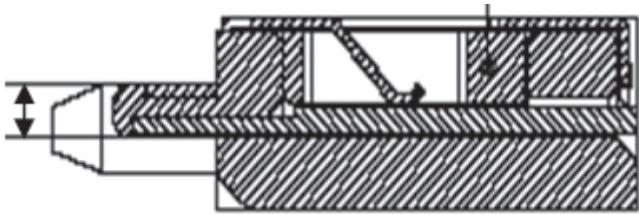
R1 in the system side should be less than 1K Ohm. ($R1 < 1K \text{ Ohm}$)



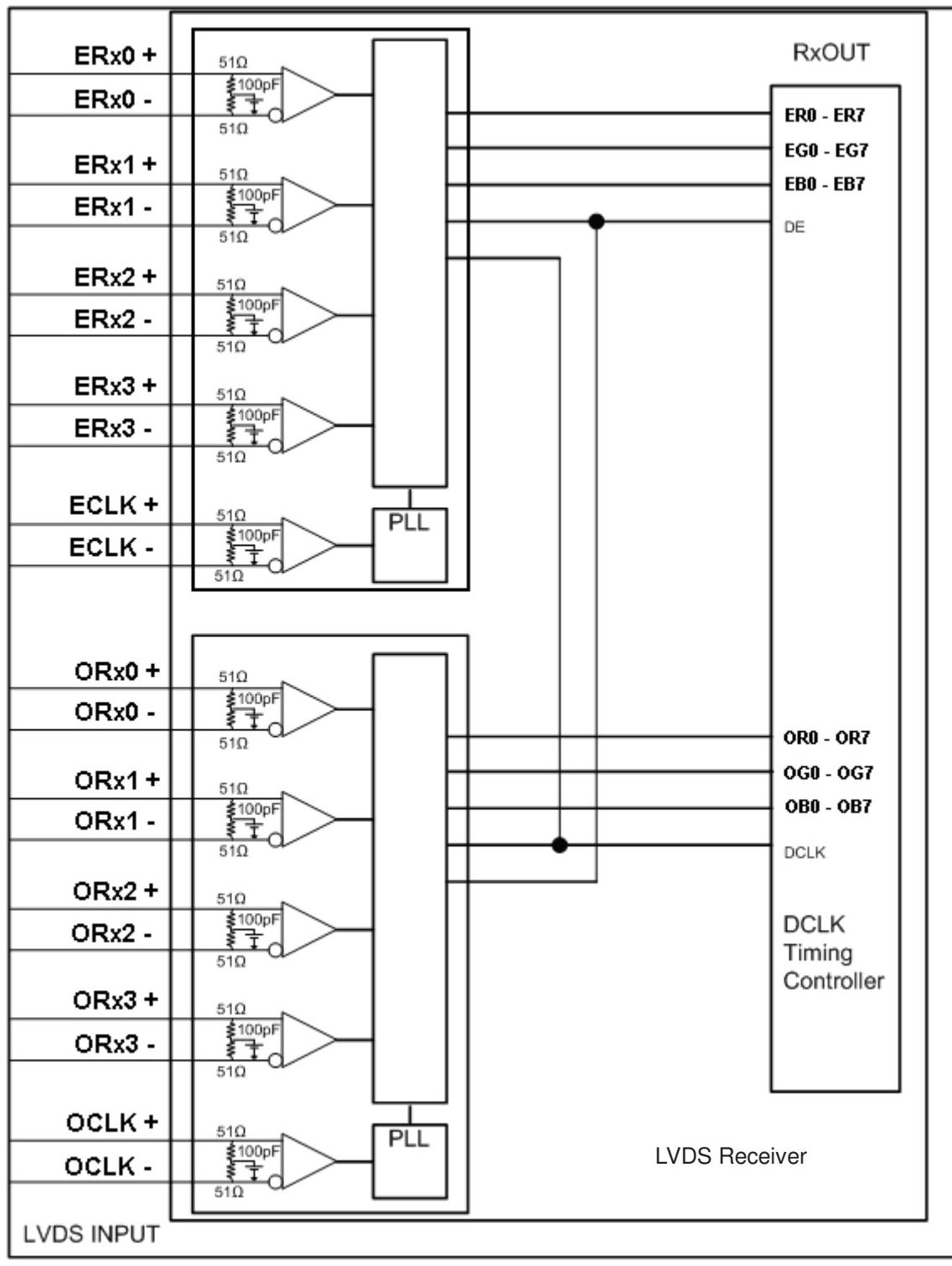
System side
 $R1 < 1K$

Note (5) Two pixel data send into the module for every clock cycle. The first pixel of the frame is odd pixel and the second pixel is even pixel.

Note (6) LVDS connector mating dimension range request is 0.93mm~1.0mm as follow:



5.2 BLOCK DIAGRAM OF INTERFACE





PRODUCT SPECIFICATION

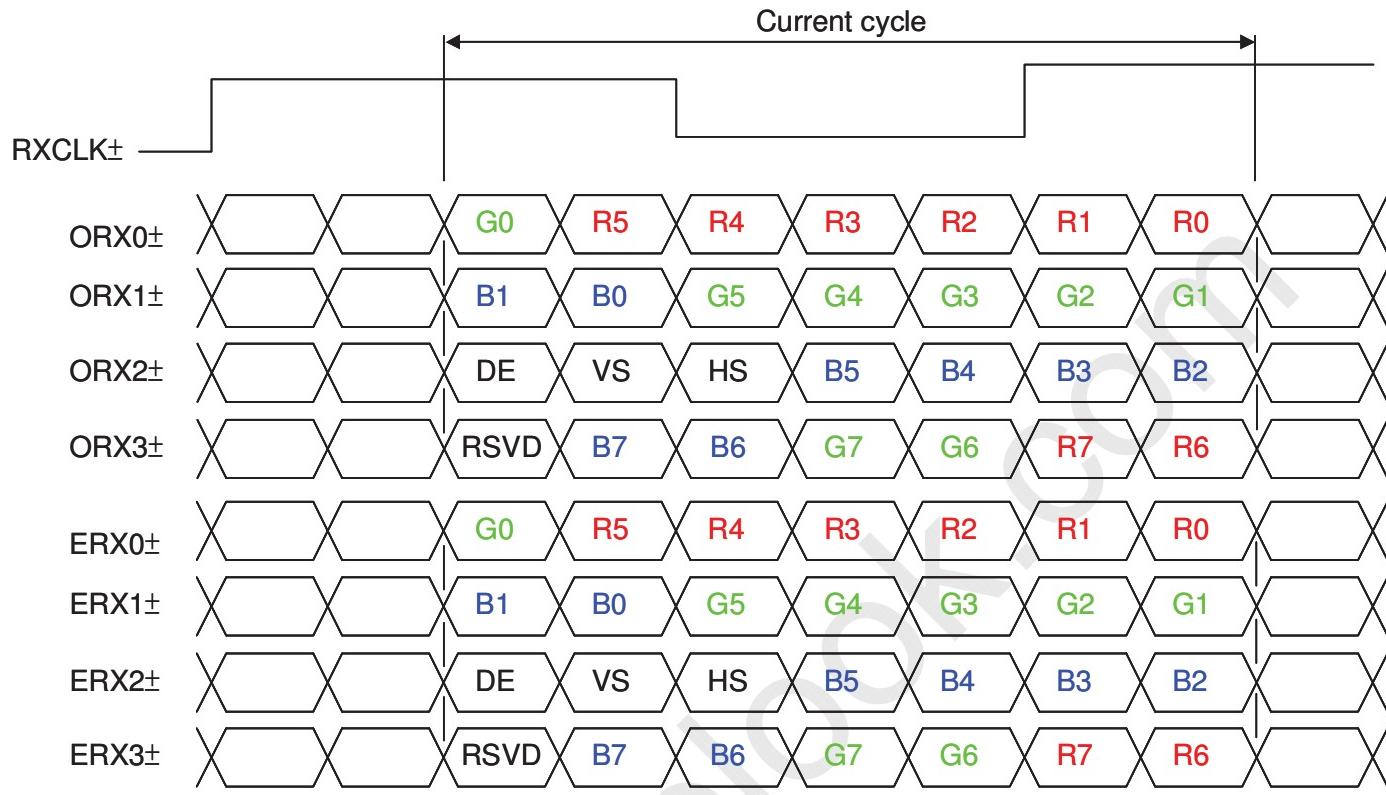
ER0~ER7	Even pixel R data	OR0~OR7	Odd pixel R data
EG0~EG7	Even pixel G data	OG0~OG7	Odd pixel G data
EB0~EB7	Even pixel B data	OB0~OB7	Odd pixel B data
		DE	Data enable signal
		DCLK	Data clock signal

Notes (1) The system must have the transmitter to drive the module.

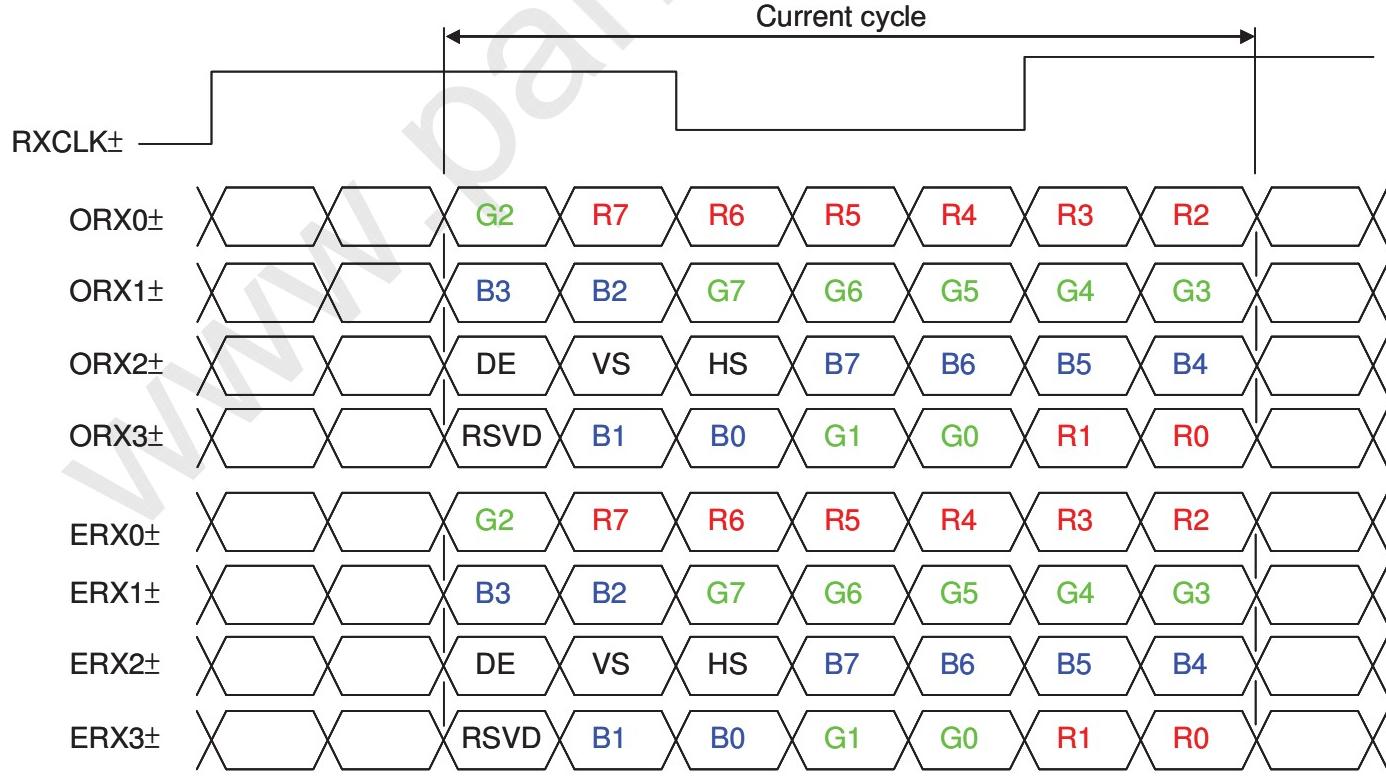
Notes (2) LVDS cable impedance shall be 50 ohms per signal line or about 100 ohms per twist-pair line when it is used differentially.

5.3 LVDS INTERFACE

VESA LVDS format : (SELLVDS pin=H or open)



JEDIA LVDS format : (SELLVDS pin=L)



R0~R7: Pixel R Data (7; MSB, 0; LSB)

G0~G7: Pixel G Data (7; MSB, 0; LSB)

B0~B7: Pixel B Data (7; MSB, 0; LSB)

DE : Data enable signal

DCLK : Data clock signal

Notes: (1) RSVD (reserved) pins on the transmitter shall be "H" or "L".

5.4 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color.

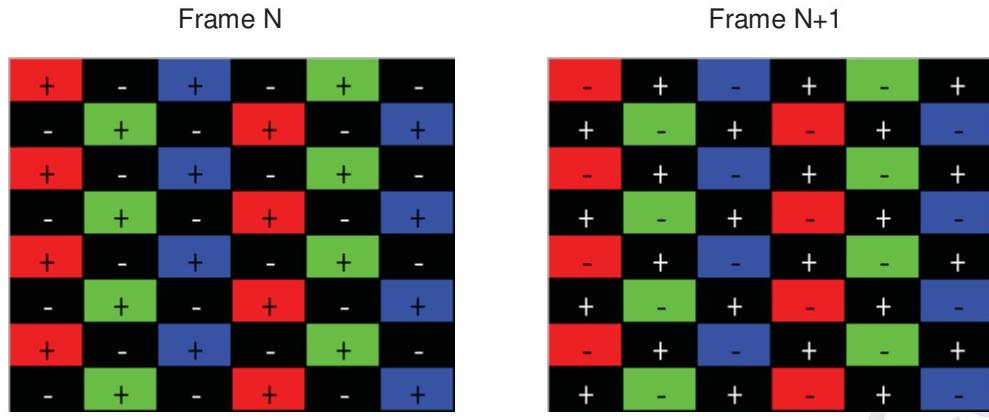
The higher the binary input, the brighter the color. The table below provides the assignment of the color versus data input.

Color		Data Signal																						
		Red								Green								Blue						
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red (0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (2)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	Red (253)	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (254)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green (0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green (1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Green (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	Green (253)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0
	Green (254)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	Green (255)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	Blue (0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue (1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Gray Scale Of Blue	Blue (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	Blue (253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue (254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
	Blue (255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

5.5 FLICKER PATTERN FOR VCOM ADJUSTMENT

(1) Flicker pattern was shown as below. If customer need below pattern, please directly contact with Account FAE.



(2) Adjustment method: (Digital V-com)

Programmable memory IC is used for Digital V-com adjustment in this model. CMI provide Auto Vcom tools to adjust Digital V-com. The detail connection and setting instruction, please directly contact with Account FAE or refer CMI Auto V-com adjustment OI. Below items is suggested to be ready before Digital V-com adjustment in customer LCM line.

- USB Sensor Board.
- Programmable software.

6. INTERFACE TIMING**6.1 INPUT SIGNAL TIMING SPECIFICATIONS**

(Ta = 25 ± 2 °C)

The input signal timing specifications are shown as the following table and timing diagram.

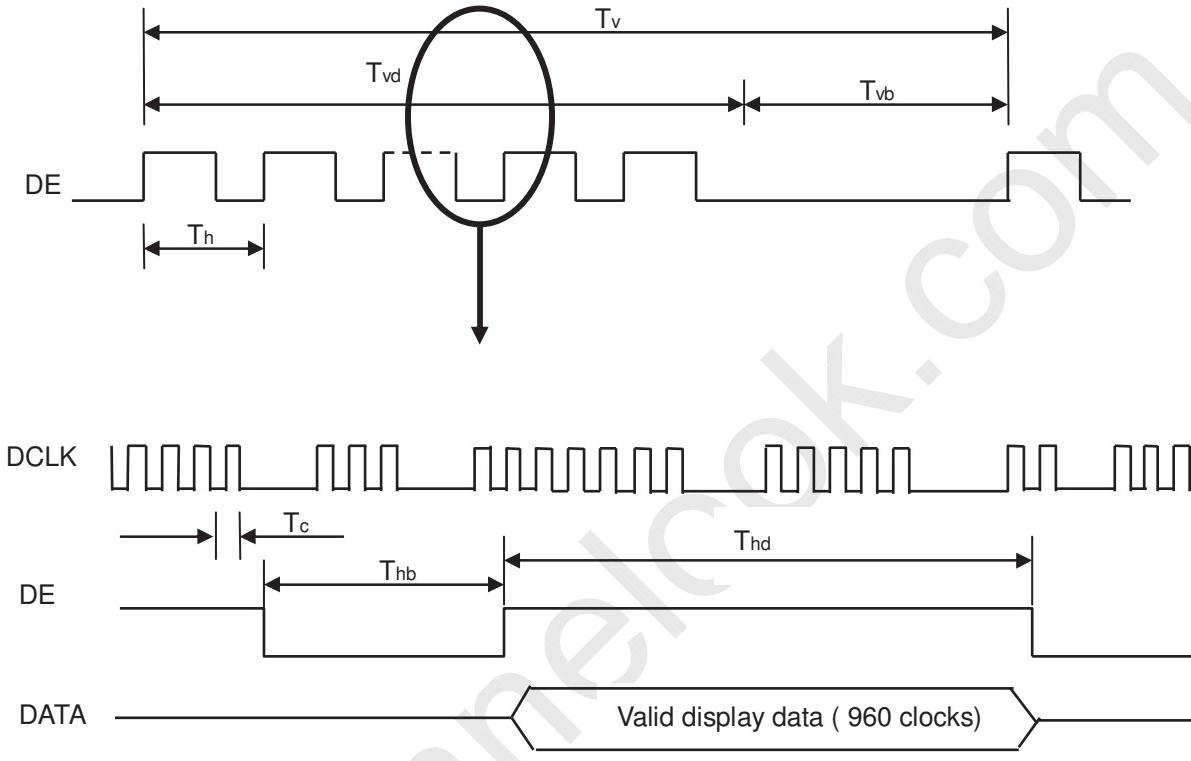
Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Receiver Clock	Frequency	F _{clkin} (=1/TC)	60	74.25	80	MHz	
	Input cycle to cycle jitter	T _{rcl}	—	—	200	ps	(3)
	Spread spectrum modulation range	F _{clkin_mod}	F _{clkin} -2%	—	F _{clkin} +2%	MHz	(4)
	Spread spectrum modulation frequency	F _{SSM}	—	—	200	KHz	
LVDS Receiver Data	Receiver Skew Margin	T _{RSKM}	-400	-	400	ps	(5)
	Frame Rate	F _{r5}	47	50	53	Hz	
		F _{r6}	57	60	63	Hz	
	Total	T _v	1115	1125	1135	Th	T _v =T _{vd} +T _{vb}
	Display	T _{vd}	1080	1080	1080	Th	—
Horizontal Active Display Term	Blank	T _{vb}	35	45	55	Th	—
	Total	T _h	1050	1100	1150	T _c	T _h =T _{hd} +T _{hb}
	Display	T _{hd}	960	960	960	T _c	—
	Blank	T _{hb}	90	140	190	T _c	—

Note (1) Please make sure the range of pixel clock has follow the below equation :

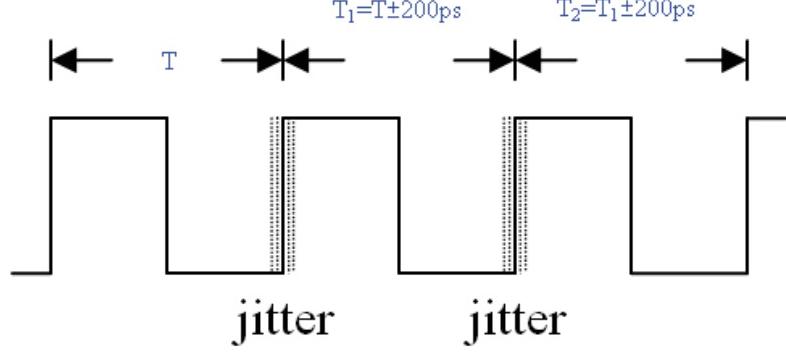
$$F_{clkin(max)} \geq F_{r6} \times T_v \times Th$$

$$F_{r5} \times T_v \times Th \geq F_{clkin(min)}$$

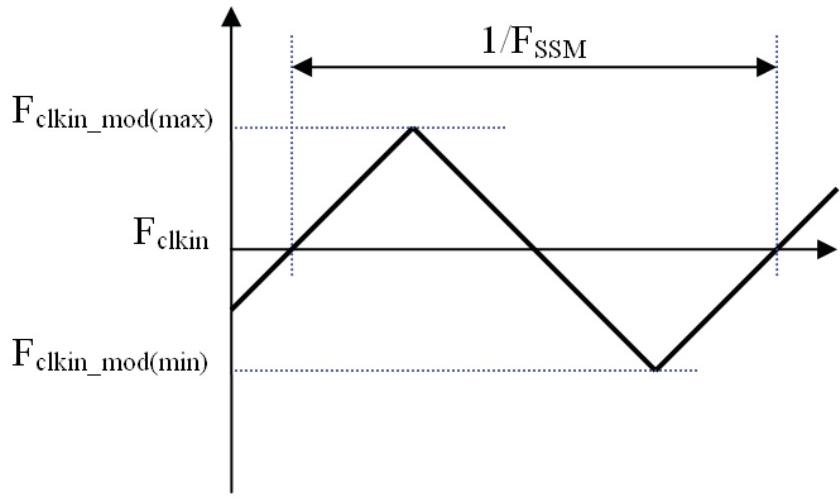
Note (2) This module is operated in DE only mode and please follow the input signal timing diagram below :



Note (3) The input clock cycle-to-cycle jitter is defined as below figures. $Trcl = |T_1 - T_2|$

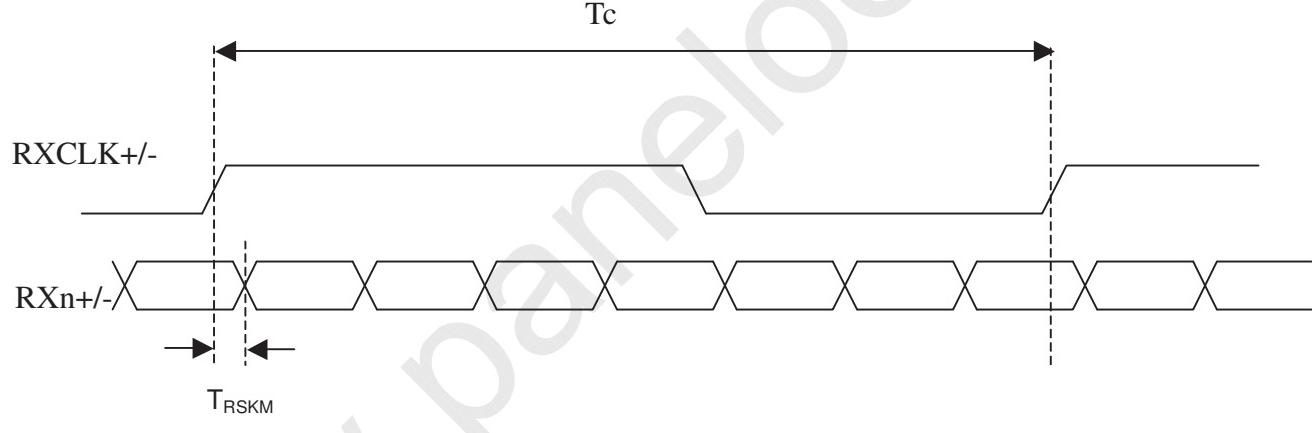


Note (4) The SSCG (Spread spectrum clock generator) is defined as below figures.



Note (5) The LVDS timing diagram and setup/hold time is defined and showing as the following figures.

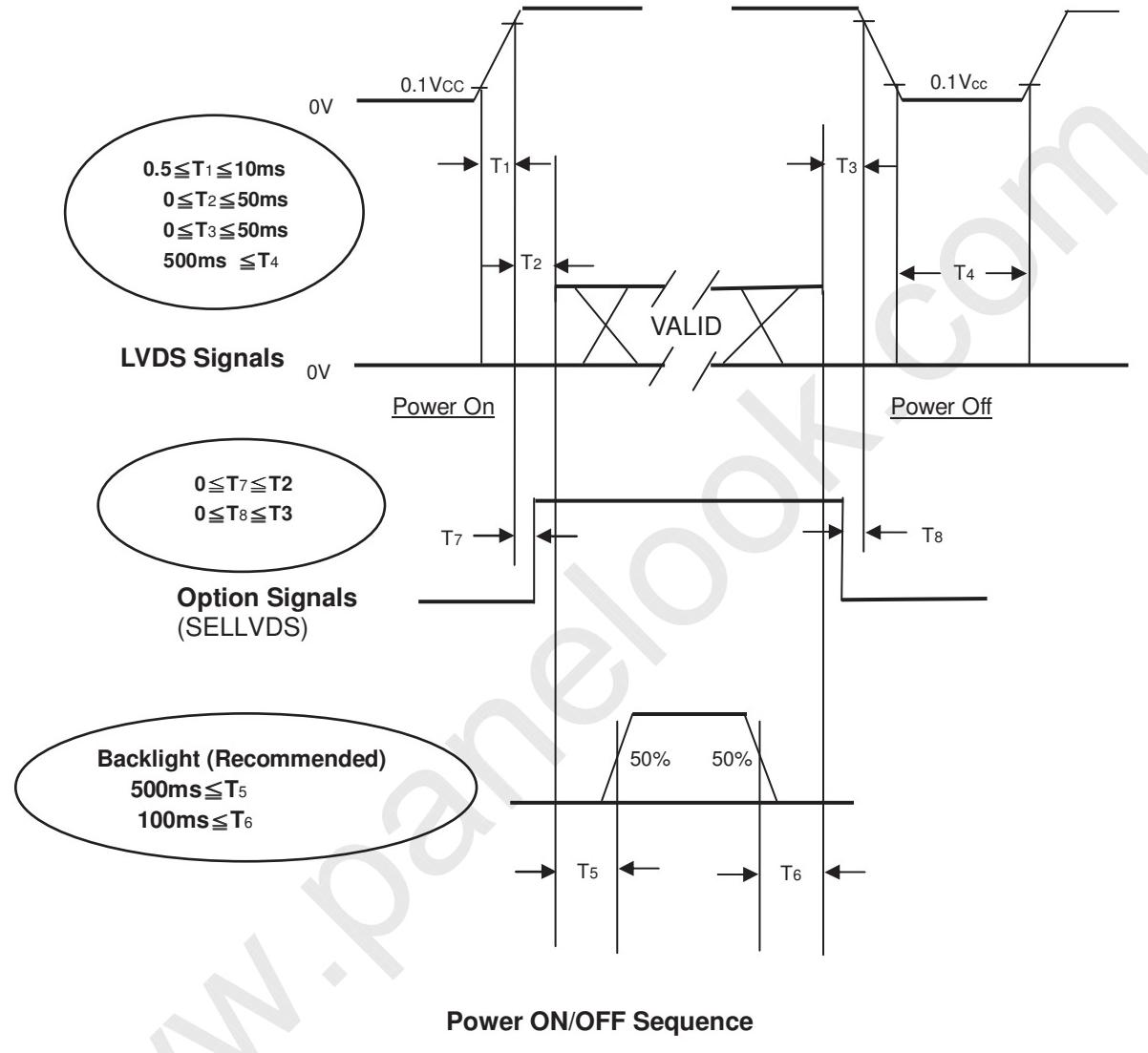
LVDS RECEIVER INTERFACE TIMING DIAGRAM



6.2 POWER ON/OFF SEQUENCE

(Ta = 25 ± 2 °C)

To prevent a latch-up or DC operation of LCD module, the power on/off sequence should be as the diagram below.



Note (1) The supply voltage of the external system for the module input should follow the definition of Vcc.

Note (2) Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.

Note (3) In case of Vcc is in off level, please keep the level of input signals on the low or high impedance. If $T_2 < 0$, that maybe cause electrical overstress failure.

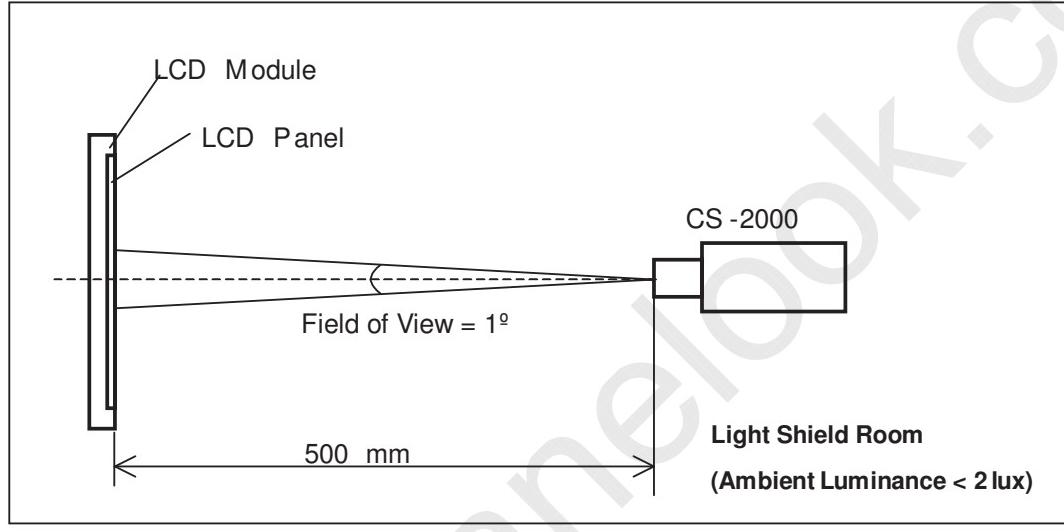
Note (4) T4 should be measured after the module has been fully discharged between power off and on period.

Note (5) Interface signal shall not be kept at high impedance when the power is on.

7. OPTICAL CHARACTERISTICS**7.1 TEST CONDITIONS**

Item	Symbol	Value	Unit
Ambient Temperature	T _a	25±2	°C
Ambient Humidity	H _a	50±10	%RH
Supply Voltage	V _{CC}	12	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Vertical Frame Rate	F _r	60	Hz

The LCD module should be stabilized at given temperature for 1 hour to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 1 hour in a windless room.



7.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in 7.1.

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note	
Color Chromaticity	Red	Typ. - 0.03	0.649	Typ+ 0.03	-	Note (0),(5)		
			0.323		-			
	Green		0.300		-			
			0.597		-			
	Blue		0.135		-			
			0.108		-			
	White		0.3075		-			
			0.3496		-			
Center Transmittance	T%	θ _x =0°, θ _y =0° with CMI module		5.7		%	Note (1),(7)	
Contrast Ratio	CR		2800	4000	-	-	Note (1),(3)	
Response Time	Gray to gray	θ _x =0°, θ _y =0° with CMI Module@60Hz	-	8	15	ms	Note (1),(4)	
White Variation	δW	θ _x =0°, θ _y =0° with CMI module	-	-	1.3	-	Note (1),(6)	
Viewing Angle	Horizontal	CR≥20 with CMI module	θx+	88		Deg.	Note (1),(2)	
			θx-	88				
	Vertical		θY+	88				
			θY-	88				

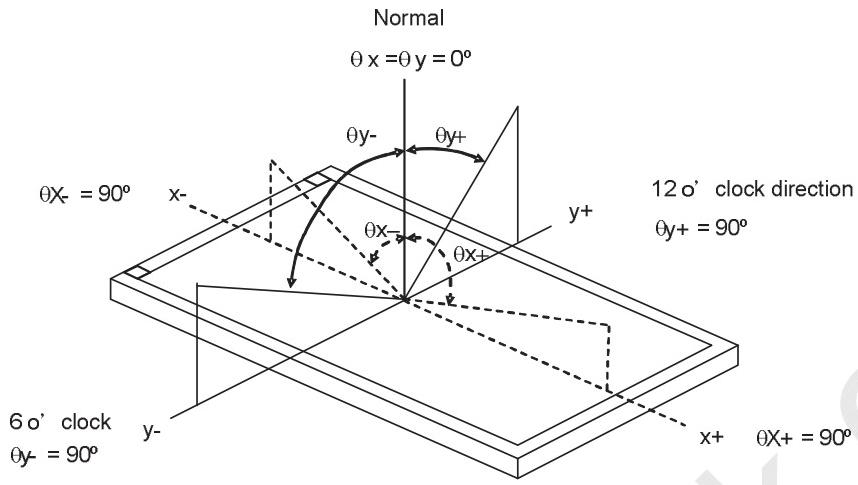
Note (0) Light source is the standard light source "C" which is defined by CIE and driving voltage are based on suitable gamma voltages. The calculating method is as following:

1. Measure Module's W,R,G,B spectrum and BLU's spectrum. Which BLU (for V420H2-L06) is supplied by CMI.
2. Calculate cell's spectrum.
3. Calculate cell's chromaticity by using the spectrum of standard light source "C".

Note (1) Light source is the BLU which supplied by CMI and driving voltage are based on suitable gamma voltages.

Note (2) Definition of Viewing Angle (θ_x, θ_y):

Viewing angles are measured by Autronic Conoscope Cono-80. (or Eldim EZ-Contrast 160R)



Note (3) Definition of Contrast Ratio (CR):

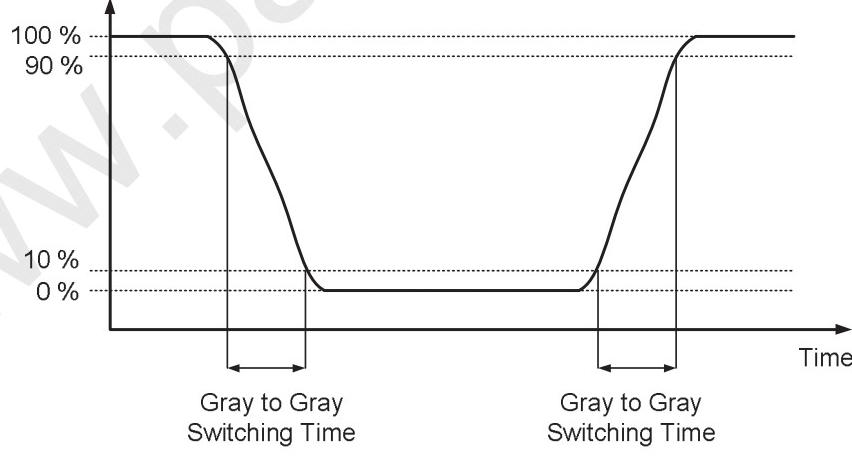
The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

CR = CR (5), where CR (X) is corresponding to the Contrast Ratio of the point X at the figure in Note (6).

Note (4) Definition of Gray-to-Gray Switching Time:

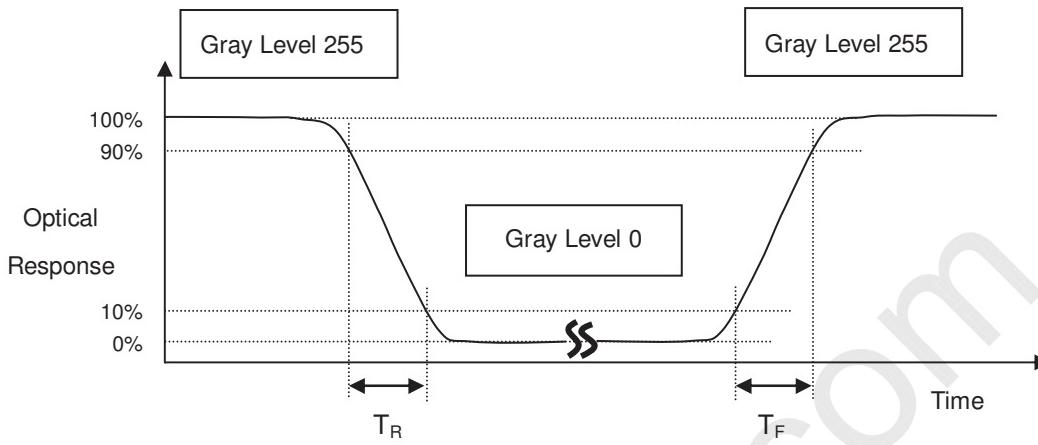
Optical Response



The driving signal means the signal of gray level 0, 31, 63, 95, 127, 159, 191, 223 and 255

Gray to gray average time means the average switching time of gray level 0, 31, 63, 95, 127, 159, 191, 223 and 255 to each other .

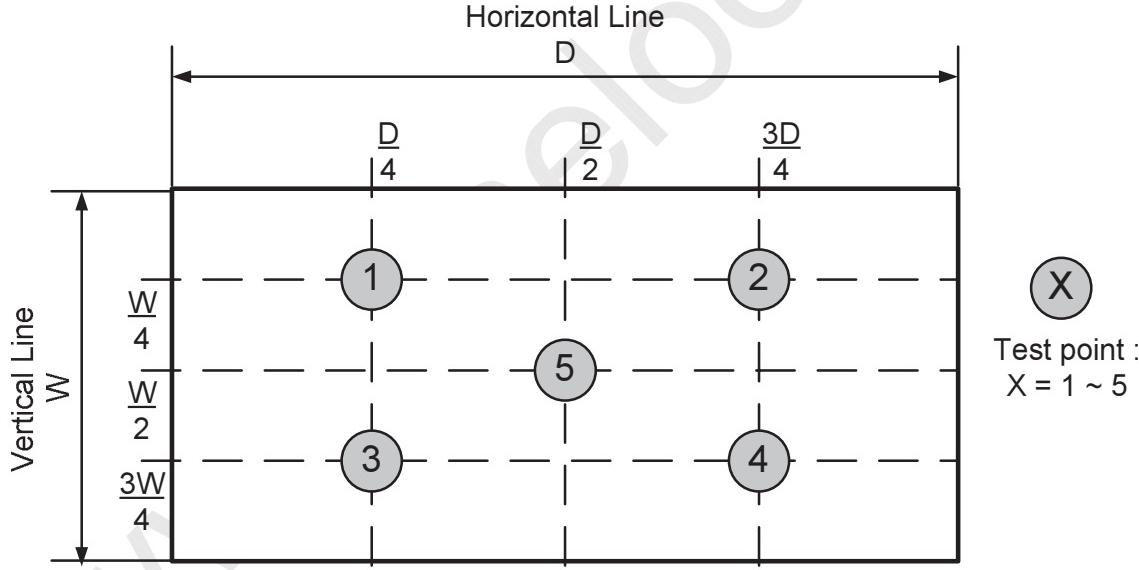
Note (5) Definition of Response Time (T_R , T_F):



Note (6) Definition of White Variation (δW):

Measure the luminance of gray level 255 at 5 points

$$\delta W = \text{Maximum} [L(1), L(2), L(3), L(4), L(5)] / \text{Minimum} [L(1), L(2), L(3), L(4), L(5)]$$



Note (7) Definition of Transmittance (T%) :

Measure the luminance of gray level 255 at center point of LCD module.

$$\text{Transmittance (T\%)} = \frac{\text{Luminance of LCD module}}{\text{Luminance of backligh unit}} \times 100\%$$

8. PRECAUTIONS**8.1 ASSEMBLY AND HANDLING PRECAUTIONS**

- [1] Do not apply rough force such as bending or twisting to the product during assembly.
- [2] To assemble backlight or install module into user's system can be only in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.
- [3] It's not permitted to have pressure or impulse on the module because the LCD panel will be damaged.
- [4] Always follow the correct power sequence when the product is connecting and operating. This can prevent damage to the CMOS LSI chips during latch-up.
- [5] Do not pull the I/F connector in or out while the module is operating.
- [6] Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.
- [7] It is dangerous that moisture come into or contacted the product, because moisture may damage the product when it is operating.
- [8] High temperature or humidity may reduce the performance of module. Please store this product within the specified storage conditions.
- [9] When ambient temperature is lower than 10°C may reduce the display quality. For example, the response time will become slowly.

8.2 SAFETY PRECAUTIONS

- [1] If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.
- [2] After the product's end of life, it is not harmful in case of normal operation and storage.

9. DEFINITION OF LABELS**9.1 CMI MODULE LABEL**

The barcode nameplate is pasted on each open cell as illustration for CMI internal control.

V420HJ1-P01



XXXXXXXXXXXXXX

9.2 CARTON LABEL

The barcode nameplate is pasted on each box as illustration, and its definitions are as following explanation

P.O. NO._____

Parts ID._____ Quantities_____

Model Name._____

Carton ID._____

10. PACKAGING**10.1 PACKAGING SPECIFICATIONS**

- (1) 12 LCD TV Panels / 1 Box
- (2) Box dimensions : 1110 (L) X 810 (W) X99 (H)mm
- (3) Weight : approximately 33Kg (12 panels per box)
- (4) 144 LCD TV Panels / 1 Group

10.2 PACKAGING METHOD

Figures 10-1 and 10-2 are the packing method.

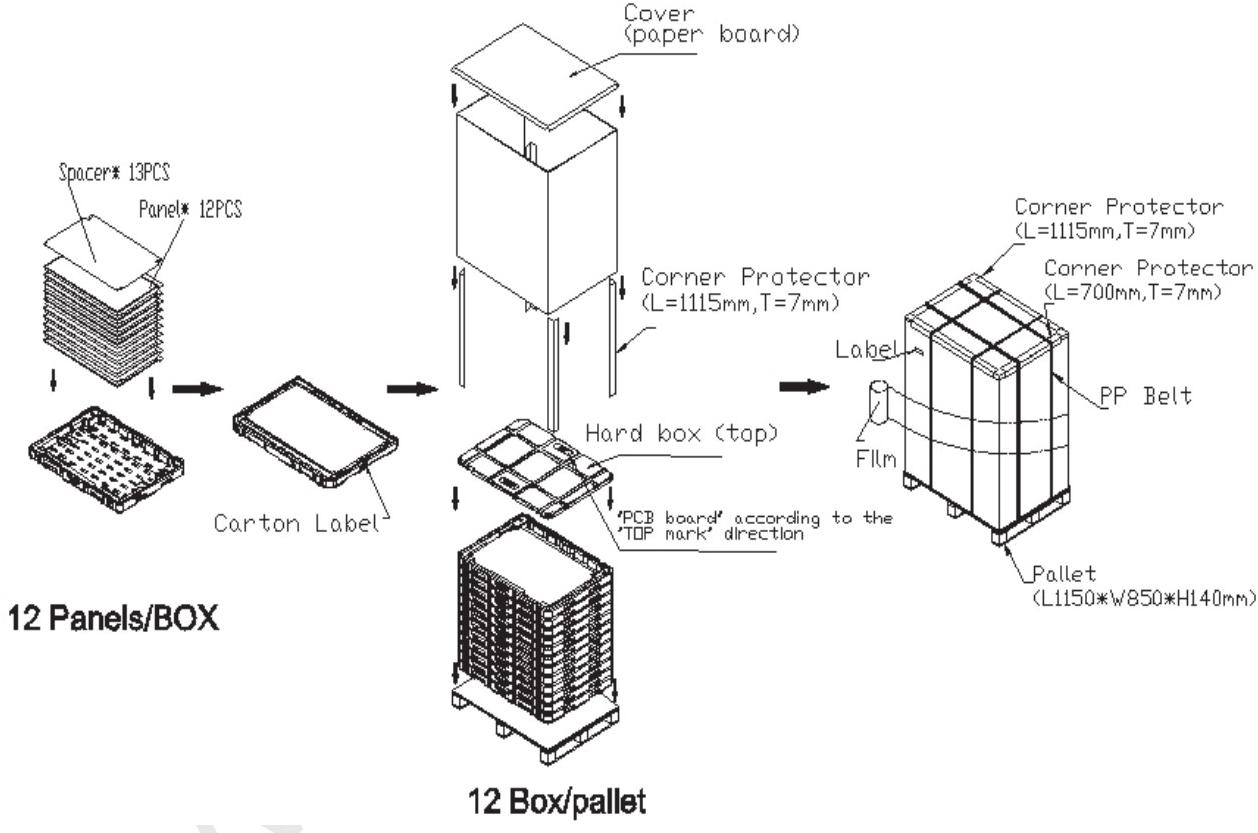
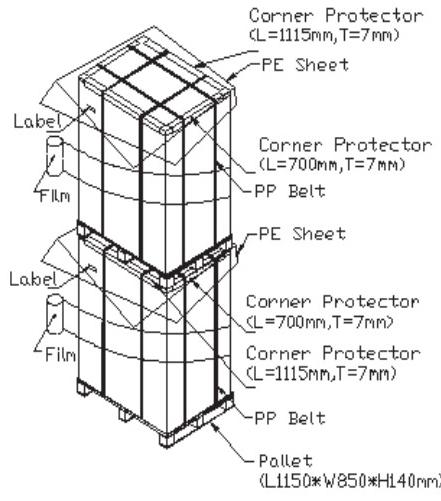
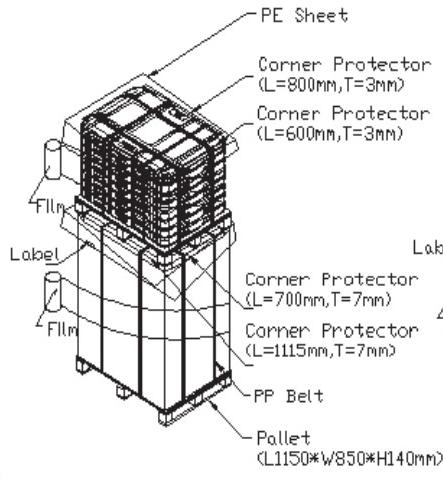


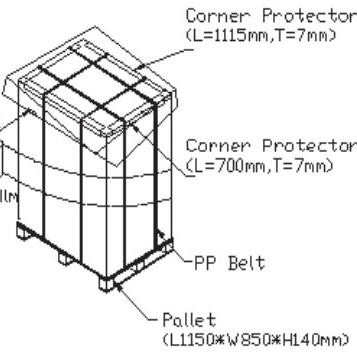
Figure.10-1 packing method

**Sea & Land Transportation
(40ft HQ Container)**


(12 Box / Pallet) + (12 Box / Pallet)

Sea & Land Transportation


(12 Box / Pallet) + (8 Box / Pallet)

Air Transportation


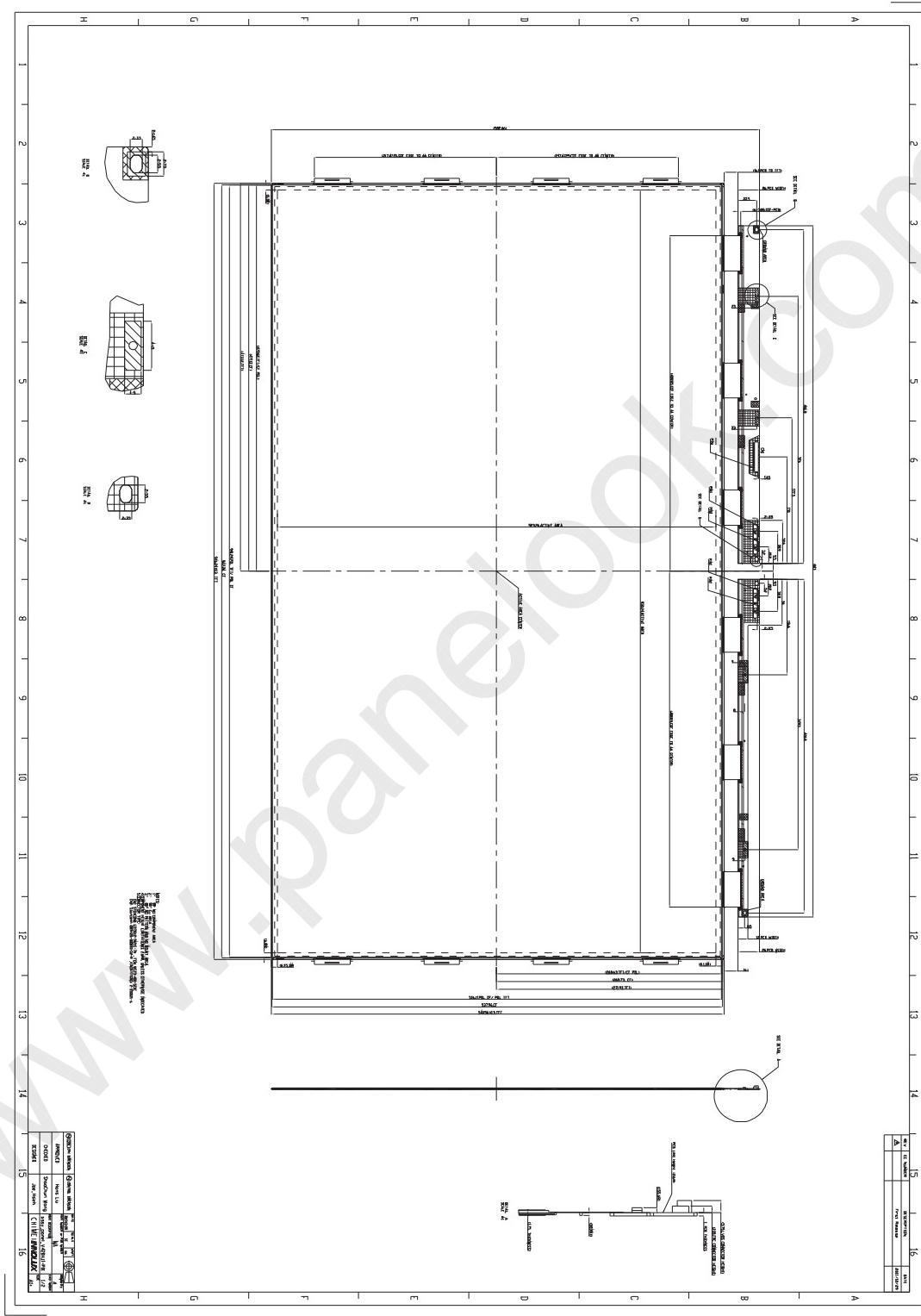
12 Box / Pallet

Figure.10-2 packing method



PRODUCT SPECIFICATION

11. MECHANICAL CHARACTERISTIC



Version 2.1

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Date : 29 Mar. 2012

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